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10 November 1980

# Worldwide Report

EPIDEMIOLOGY

No. 206

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10 November 1980

## WORLDWIDE REPORT

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NATIONAL TUBERCULOSIS INCIDENCE FIGURES REPORTED

São Paulo O ESTADO DE SÃO PAULO in Portuguese 10 Oct 80 p 13

[Text] Brasília--More than 35 million Brazilians are infected with tuberculosis; there is an incidence of 120,000 new cases of the disease a year in the country and a prevalence of 200,000 patients. That is the conclusion of a survey done by the National Secretariat of Special Programs of the Ministry of Health, whose studies also show that "tuberculosis is the first priority in the field of lung hygiene because of its great scope and relevance."

This problem, according to the experts in the field, can only be solved, at least in large part, by extending antituberculosis campaigns to the interior and making them more comprehensive. These measures, and more especially the simplification of procedures are, in the opinion of the secretariat's specialists, the basis for defining new strategies in diagnosis, by direct bacilloscopy of the sputum, and in treatment, which can be reduced in duration by 6 months, in addition to the development of preventive campaigns with the indiscriminate use of the BCG [Calmette-Guérin bacillus] on a national scale.

The emphasis on diagnosis and treatment, according to the specialists, should be established immediately in view of better epidemiological effects obtained by this campaign, translated into early elimination of the sources of contagion. The reduction in treatment time from 12 months to 6, according to the same specialists, will make it possible to intensify the treatment of high-risk patients and reduce by half the operational resources mobilized to treat a case.

Hospitalization of patients who are carriers of tuberculosis, in the opinion of the specialists, has become unnecessary according to the studies done, because of the similar results of hospital treatment and home treatment, as well as by reason of the equal risk of becoming ill observed among associates of hospital patients and of those receiving only ambulatory treatment.

The same experts emphasize that "tuberculosis control campaigns, when united under the direction of the Secretariat of Health, without duplication of expenses, have permitted an excellent operational return, with an effective diagnosis of cases that approximates the numbers epidemiologically predicted and with a high percentage of cures, in addition to reducing the rate of hospitalization, which has dropped below 10 percent of the total number of patients registered."

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CSO: 5400

BRAZIL

# MINISTRIES LAUNCH MALARIA PREVENTION CAMPAIGN IN MINING AREA

São Paulo O ESTADO DE SÃO PAULO in Portuguese 4 Oct 80 p 11

[Text] Brasilia--A joint commission of the Ministry of Health and the Ministry of Mines and Energy was formed this week in Belém to study the possibility of a malaria prevention campaign in the 205 clandestine mines located in the state of Pará and identified by the Superintendency for Public Health Campaigns (SUCAM). The commission will analyze what strategy is most indicated so that SUCAM agents can penetrate into the area and carry out the campaign to combat the disease.

This information was furnished yesterday by Waldyr Arcoverde, minister of health, who added that within a short time "we shall have the definition of the strategies that will be followed by the SUCAM agents." The Ministry of Health's main intention, according to specialists in the field, is to prevent malaria from assuming undesirable proportions in the region, inasmuch as the disease has for some time been becoming a serious threat to the population of the interior of Pará, especially in the area of the mineral deposits.

The identification of the 205 clandestine mines was done through the SUCAM survey to find out the area threatened by malaria. The results of the survey were conveyed to the president of the republic by the minister of health himself, who asked for means to facilitate access of SUCAM agents to the mineral deposits.

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MENINGITIS CASES REPORTED IN MARANHÃO; INVESTIGATION

Meningitis in Maranhão

São Paulo O ESTADO DE SÃO PAULO in Portuguese 1 Oct 80 p 13

[Text] São Luís--Over 20 confirmed cases of meningitis have been observed in the hospitals of Imperatriz, Maranhão, according to a report by Drs José Raimundo Walter and Edson Álvares Pacheco, who maintain a neurological clinic in that city. The regional health coordinator admitted the outbreak of the disease and revealed that two new cases were treated yesterday in Santa Maria Hospital.

For more than 40 days isolated cases have been occurring in that region, but José Rodrigues Lopes, state secretary for health, on the basis of laboratory examinations done in São Luís, denied the existence of the outbreak. Physicians of the Institute of Neurology at Imperatriz now say that those examinations could not have proved anything, because the collection of material did not meet the minimum conditions that the case required. They also say that the material was not sent to São Luís until 4 days after it was collected, and then without the protection of dry ice and by inadequate transportation.

Investigation Ordered

Rio de Janeiro O GLOBO in Portuguese 7 Oct 80 p 7

[Text] Brasília (O GLOBO)--Waldyr Arcoverde, minister of health, has ordered an investigation of the reports of cases of meningitis in Maranhão. Arcoverde explained that the local health secretariat will send to the ministry the laboratory reports of all the cases registered thus far, so that the type of meningitis can be determined.

"It is not likely to be meningococcal meningitis, which is capable of causing epidemics. But we shall take precautions, and if that should be the case the ministry has ample means at its disposal to vaccinate all of the population that is threatened and so prevent the spread of the disease."

Arcoverde stated that isolated cases of meningitis occur now and then in every country in the world.

"They are cases of virus meningitis or tuberculous meningitis, for which there are no vaccines and which involve no risk of epidemics. The Brazilian people can remain calm, because the epidemiological alert system is functioning fully, and not only in relation to meningitis."

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## HEALTH MINISTRY FIGURES ON MALARIA IN AMAZONAS REFUTED

São Paulo O ESTADO DE SÃO PAULO in Portuguese 19 Sep 80 p 12

[Text] Manaus--The office of the regional SUCAM [Superintendancy for Public Health Campaigns] coordinator in Manaus yesterday refuted the figures published by the Ministry of Health according to which there were 60,000 cases of malaria in Amazonas in 1979. "Last year," said the note published in the local press, "only 4,890 cases of the disease were diagnosed in the state," and the figure furnished by the ministry refers to the malaria situation in the whole Amazon region.

Presenting figures, SUCAM states that malaria in Amazonas is under control and shows a stable picture, for in the first half of this year 42,921 slides were examined and only 2,285 cases were found. "The conditions that exist in Amazonas," the note says, "render treatment against malaria difficult, but even so, the preventive and curative measures that have been taken in recent years have succeeded in radically reducing the incidence of cases."

Again according to SUCAM, deforestation, road construction, the opening up of mines, artificial plant nurseries, work near the jungles, and inadequate housing are some of the factors that contribute to the creation of conditions favorable to an increase in the number of cases of malaria in the region.

"The only reason this increase is not occurring in Amazonas," SUCAM explains, "is the development of the campaign carried on by the agency, which is continuously on the watch, spraying with insecticides, evaluating epidemiological conditions, making active and passive searches for patients, establishing information posts, and always carrying on health education work among the population."

The note distributed to the press concludes that "in spite of all the operational difficulties encountered, the malaria situation in Amazonas is under control, and there is therefore no cause for alarm."

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CSO: 5400

## BRAZIL

### BRIEFS

SKIN DISEASE AMONG MINAS INDIANS--Bel: Horizonte (O GLOBO)--The remaining 500 Maxacali Indians in the villages of Agua Boa, Micael, and Pradinhos, in the Mucuri valley, are suffering from an unidentified skin disease, and there are also cases of pneumonia, dehydration, undernourishment, and alcoholism, according to information released by representatives of the Indian Mission of the Archdiocese of Teófilo Otoni. Péricles Ribeiro dos Santos, a physician of Aguas Formosas, a city near the villages, confirmed the report and also stated that "because of neglect on the part of the FUNAI [National Indian Foundation]," about 30 Maxacali Indians have been for several days "trading bows and arrows for alcoholic beverages" in that city. He said that in the last few days more than 10 Indians have undergone intensive treatment in the local hospital. [Text] [Rio de Janeiro O GLOBO in Portuguese 13 Oct 80 p 5] 5588

MENINGITIS CASES IN MARANHÃO--São Luís (O GLOBO)--José Rodrigues Lopes, secretary for health of Maranhão, confirmed yesterday the occurrence of several cases of meningitis in the city of Imperatriz, situated in the area served by the Belém-Brasília highway, 480 kilometers from São Luís. Lopes said that some cases had their origin in the gold mine of Serra Pelada, in the state of Pará, where a big contingent of people from Maranhão are working, chiefly laborers without land. Of the 25 cases diagnosed in Imperatriz since January, it has only been possible for 15 to be studied by the teams sent to the region by the Secretariat of Health, the Evandro Chagas Institute, and the Ministry of Health. Five cases were confirmed; there are doubts about some of the others. [Text] [Rio de Janeiro O GLOBO in Portuguese 9 Oct 80 p 8] 5588

CSO: 5400

DOMINICAN REPUBLIC

POOR HEALTH STATUS OF POPULATION DETAILED

Rise in Diseases

Santo Domingo EL CARIBE in Spanish 30 Sep 80 pp 1, 4

[Article by Eunice Lluberas]

[Text] Diseases such as tuberculosis, malaria, polio, measles, typhoid fever, syphilis, gonorrhea and intestinal disorders have grown more widespread over the last 2 years, a development that seems related to inadequate health care services.

The highest rates of incidence are for tuberculosis, malaria, syphilis, polio and intestinal disorders, according to official statistics.

The incidence of tuberculosis was 28.8 per 100,000 inhabitants in 1978, rising to 42.9 in 1979.

The incidence of malaria rose from 29.0 in 1978 to 36.7 last year.

Specialists contend that there are currently localized outbreaks of malaria in the country, which points to worsening sanitary conditions, inasmuch as the disease was virtually under control at the start of the decade.

Dr Bernardo Defillo feels that the outbreaks of malaria are largely due to inadequate antimalaria programs in Haiti and to heavy immigration by poorly monitored, disease-bearing Haitians, who represent permanent sources of infection, in addition to which the mosquito that transmits the disease was never totally eliminated.

Estimates are that 75 percent of the initially affected area is on the way towards eradicating the disease, with the remaining 25 percent at the attack stage, but by this time the consolidation period was already supposed to have been concluded.

According to official data, the country has not achieved its goal of reducing the incidence of venereal diseases.

Although we were unable to secure the incidence rate for syphilis and gonorrhea for 1978, we did establish that there was an increase of 35.2 and 14.7 percent, respectively, from 1971 to 1978.

The incidence of syphilis was 410.1 per 100,000 inhabitants in 1978, compared to 357.2 in 1977.

The increase in venereal disease, like malaria, is connected with the arrival of affected Haitians, and outbreaks have been detected in areas in which they live.

The incidence of polio has risen sharply, and epidemics have been detected. One of the most severe outbreaks has taken place this year, with 114 cases recorded as of last Saturday.

The morbidity rate recorded a sharp rise in 1978 as a result of a nationwide outbreak, as in 1959, 1963 and 1975.

Official documents describe as high the incidence of polio over the last 5 years.

These documents indicate that the vaccination rate of 52.9 percent was based on the assumption that children under 5 years of age had already been immunized, which might not necessarily be the case. Polio is an endemic disease in the country.

The incidence of measles was 109.8 per 100,000 inhabitants in 1978, rising to 164.7 in 1979. Although the disease caused fewer deaths during the decade, mortality rates are still higher than programmed targets. The mortality rate dropped from 3.5 in 1971 to 2.0 in 1978.

A coverage rate of 14.8 was achieved in 1978, far below the goal of 40 for children under age 5.

According to government figures, the incidence of typhoid fever rose from 17.4 in 1978 to 29.8 in 1979.

Intestinal diseases, the number one cause of death for both the general population and for children under 5 years of age, are inadequately recorded due to shortcomings in health care information systems. Rates of incidence, prevalence and mortality are all underrecorded.

Nevertheless, statistics for the past 2 years suggest that there have been major outbreaks of gastroenteritis.

The incidence of these intestinal diseases was 1,768 per 100,000 inhabitants in 1978, rising sharply to 2,061.8 cases per 100,000 in 1979.

Digestive tract diseases produced death rates of 50.7 in 1971 and 29.1 in 1978; the rates for children under 5 are 275.7 and 145.1.

Dr Defillo estimates that over the last 5 years the Dominican people have been exposed almost constantly to the various infectious agents that cause diarrhea and vomiting.

He also feels that the population suffering from gastroenteritis has infectious or parasitic diarrhea 6.5 days a month, which indicates that these illnesses are chronic.

In 1978 and 1979, the public health care sector provided 3.96 and 3.99 million consultations, with rates of 754.6 and 758.1 per 100,000 inhabitants.

Dr Defillo assumes that this includes cases of gastroenteritis. The highest rates occur during the first few months of the year and in summer.

In general, he feels that rates of disease incidence, increase and mortality have not changed too significantly during the past decade.

In discussing mortality as an indicator of health, the doctor made a connection between life expectancy and overall health conditions.

A high and broadly-based mortality rate reduces life expectancy and stems from disease, the lack of education and insufficient and poor quality food.

According to Dr Defillo, the highest mortality rate is among the young, mainly children under the age of 5, and middle-aged Dominican adults.

Ultimately, death rates reduce the economically active population and diminish the chances for healthy growth among children who survive infancy.

The most widespread death-causing diseases are communicable and perfectly controllable, Dr Defillo observes.

In the case of measles, the death rate among children under 5 was 3.5 per 100,000 in 1971 and 2.0 in 1978.

The goal for the Caribbean region is 1 death per 100,000 inhabitants, while the national goal is 2.

To reach this goal, the public sector is supposed to immunize 80 percent of children under age 5 every year.

Dr Defillo also mentioned whooping cough, whose mortality rate was 0.1 to 0.08 per 100,000 residents during the period in question. The regional goal for this year is 1 per 100,000, and the national target is 0.1.

The death rate for tetanus was 10.6 in 1971 and 1.95 in 1978; the regional goal is 0.5, and the national, 1.0.

The national and regional goal for diphtheria is 1, whereas the rate was 6.52 per 100,000.

The authorities had set a goal of cutting the polio death rate to 1 per 100,000. This has obviously not been achieved, as outbreaks were recorded in 1978 and 1980.



INCIDENCIA DE ENFERMEDADES - Tasa por 100.000 habitantes \* (14)

ENFERMEDADES	AÑOS									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
1. Tuberculosis				18.3	17.1	32.7	32.1	27.9	28.8	42.9
2. Lepra				8.8	8.8	8.8	9.7	8.0	7.8	
3. Sifis		191.6	191.6	191.6	241.3	208.2	492.7	387.2	410.1	
4. Gonorrea	208.3	208.3	208.3	208.3	215.8	354.9	693.2	484.6	609.7	
5. Pielomastitis	0.27	2.34	0.32	0.72	0.78	2.47	0.59	0.84	3.14	0.21
6. Sarampión				92.5	92.5	92.5	149.4	114.8	109.8	184.7
7. Difteria				7.8	7.8	7.8	9.0	7.8	6.3	4.9
8. Tétanos				20.8	20.8	20.8	30.2	26.1	17.4	29.8
9. Malaria		64.57			113.86				29.0	56.7
10. Ent. Entericas									7.68	11.06
11. Tétanos									2.0	3.5
12. Tos Ferina									18.8	17.8

MORTALIDAD POR ENFERMEDADES (Tasa por 100.000 Habitantes) (15)

ENFERMEDADES	AÑOS										METAS (16)	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Región	País
1. Tuberculosis		5.7		7.0	6.7	6.2			6.12		vacunación (17)	50% 100%
2. Lepra											Disminución (18)	
3. Sifis									85.2		0	Control 80%
4. Gonorrea									14.7		0	Control 80%
5. Pielomastitis									3.14		0.1	1.0
6. Sarampión		3.5	3.9	3.9	3.40	4.0			2.6		1.0	2.0
7. Difteria		6.8							6.5		1.0	1.0
8. Tétanos												
9. Malaria											90 Paises	
10. Ent. Entericas		80.7			45.4				29.1		50%	40%
11. Tétanos		10.6			5.45				2.0		0.5	1.0
12. Tos Ferina		0.1							0.08		0.1	0.1
13. Ent. Entericas Menos 5 años		275.7			233.4				145.7			



Key:

1. Tuberculosis
2. Leprosy
3. Syphilis
4. Gonorrhea
5. Poliomyelitis
6. Measles
7. Diphtheria
8. Typhoid fever
9. Malaria
10. Intestinal diseases
11. Tetanus
12. Whooping cough
13. Intestinal diseases among children under 5
14. Incidence of diseases (per 100,000 inhabitants)
15. Disease mortality (per 100,000 inhabitants)
16. Goals
17. Immunization

Dr Defillo pointed out that the tuberculosis death rate was 8.12 per 100,000 inhabitants and that regional and national goals are to cut this figure by 50 and 65 percent.

According to official statistics, 27.3 new cases have been found per 100,000 inhabitants; 3.2 percent of young children have been vaccinated with BCG; all new cases have begun ambulatory treatment under some form of hospitalization, and all new cases have also seen physicians.

Dr Defillo contends that the tuberculosis figures are contradictory due to the high rates of incidence and mortality.

In his opinion, although these mortality rates seem to stem from more complete records of causes of death, they represent a real rise in the death rate of at least 42 percent in 1978 compared to the outset of the decade.

#### Low Life Expectancy

Santo Domingo EL CARIBE in Spanish 29 Sep 80 pp 1, 4

[Article by Eunice Lluberes]

[Text] Dominicans are still dying before the age of average life expectancy at birth.

The average Dominican male lives 59.5 years, while Dominican females reach an age of 62.9 years.

This average is far below the estimates for other countries, where the average life expectancy is 72 years and up to 100 in the case of Eastern European nations.

The low life expectancy of Dominicans is due to a combination of malnutrition, failure to control communicable diseases and the agents that cause them, and inadequate health care services.

Only some 33 percent of the economically active population achieve a desirable standard of living, and of this group, only 8 percent secure and develop optimum health conditions, according to estimates based on official statistics.

Health specialists define life expectancy as the number of years that a person will live on the average, which depends on how favorable his environment is and his ability to overcome the obstacles that it poses to him.

Over the past decade, Dominican men and women have boosted their life expectancies by 2.4 and 4.3 years, respectively.

Although satisfactory, this average is below the estimate for the Caribbean region and the rest of the world and is indicative of slow progress.

Also, this life expectancy is not evenly distributed among varying age groups in our country.

Specialists such as Dr Bernardo Defillo describe as tragic the fact that the highest mortality rates are among children under age 7, which should live the longest, and among adults from 30 to 65 years of age.

To Dr Defillo, health is not just the absence of disease; on the contrary, it is a series of conditions and factors that enable man to be born, grow, develop and die in suitable emotional, cultural, biological, physical and social situations.

At birth a Dominican child must cope with contagious and parasitic diseases and malnutrition, with few institutional resources and poor family conditions. Few of them enjoy overall conditions conducive to a healthy life.

The drop in life expectancy among adults is due mainly to cardiovascular diseases such as high blood pressure, arteriosclerosis, heart attack, hemorrhaging and apoplexy, as well as diabetes, overweight and kidney damage.

As a common factor among both groups, Dr Defillo points out that diseases can be prevented by mass immunization of the infant population and by promoting improved personal, family and environmental health conditions.

Life expectancy is also not evenly distributed among urban, suburban and rural areas. The mortality rate per 1,000 rural residents is 16.9, compared to 14.7 in the cities.

Among children between ages 1 and 4 in the border zone, in the southwest and areas of Central Cibao, the mortality rate is 103.8 for each 1,000 live births.

Dr Defillo contends that life expectancy is sharply reduced because 43 percent of these deaths are caused by communicable diseases, poor health conditions and malnutrition, especially during the first 3 or 4 months of life.

**DEFUNCIONES Y SUS RESPECTIVAS TASAS POR CADA 1,000 HABITANTES (1)**  
**SEGUN REGIONES Y AREAS, REP. DOM. 1978**

REGIONES Y AREAS	*POBLACION ESTIMADA AL 1ro DE JULIO 1970 NUMERO (2)	(3) TASA POR 1,000 HABITANTES	
EL PAIS (4)	8,124,394	23.127	4.5
NUCLEO CENTRAL (5)	1,703,099	7.837	4.6
Area Dist. Nacional	1,304,036	7.020	5.4
Area San Cristóbal	399,063	817	2.0
REGION I	544,830	3,209	5.9
Area Peravia	150,008	693	4.6
Area Azua	98,437	446	4.5
Area San Juan	230,707	1,843	8.0
Area Elias Piña	65,680	227	3.5
REGION II	1,140,881	4,108	3.6
Area Santiago	492,014	2,072	4.2
Area Espailiat	148,689	480	3.1
Area Pto. Plata	212,840	760	3.6
Area Monte Cristi	78,408	177	2.3
Area Dajabón	63,863	98	1.5
Area Sgo. Rodríguez	53,785	145	2.7
Area Valverde	90,702	396	4.4
REGION III	976,823	4,426	4.5
Area Duarte	241,883	1,125	4.7
Area Salcedo	96,472	472	4.9
Area La Vega	355,125	1,667	4.7
Area Sánchez Ramírez	130,208	552	4.6
Area Ma. T. Sánchez	100,100	296	3.0
Area Samaná	63,085	314	5.0
REGION IV	283,122	1,144	4.0
Area Barahona	147,187	637	4.3
Area Bahoruco	81,921	331	4.0
Area Independencia	36,900	105	2.8
Area Pedernales	17,114	71	4.1
REGION V	478,439	2,309	5.0
Area El Seibo	141,018	799	5.7
Area San P. de Macorís	151,059	882	5.7
Area La Romana	81,640	467	5.7
Area La Altagracia	102,522	241	2.3
EXTRANJERO (6)		34	2.3

**Key:**

1. Deaths and their respective rates per 1,000 inhabitants, according to regions and areas in the Dominican Republic, 1978
2. Estimated population as of 1 July 1970
3. Rate per 1,000 inhabitants
4. Nationwide
5. Central zone
6. Overseas

Moreover, we do not know the cause of death in about 40 percent of the cases, on account of inadequate reporting to civil authorities.

Another factor is that death certificates in many rural areas are issued by unqualified individuals. Underrecording is a third reason.

These considerations suggest that the mortality rate is even higher.

Dr Defillo thinks that we can assume that our mortality rate is high and life expectancy low since a large segment of the population is dying prematurely from a biological standpoint.

#### How To Achieve A Higher Life Expectancy

It stands to reason that to live a long life children must be given healthy living conditions.

Dr Defillo feels that the most important thing is for parents to give their children a roof over their heads, food, work, schooling, job security, protection, freedom and a real chance to develop.

Given such an environment, a child can achieve a desired life expectancy.

The statistics are not very encouraging. About one million Dominicans secure these health conditions, but some three and a half million secure just some of these indispensable factors.

Life expectancy is tied to a whole range of socioeconomic indicators, such as fertility, the economic growth rate, the makeup of the gross domestic product, the expansion of certain production activities, the distribution of public and private investment, and matching job sources with the country's productive sectors.

Life expectancy is estimated statistically, based on the so-called health indices.

Tables are drawn up, and based on the results we can state that if life expectancy is high, health conditions are good, and vice versa, if life expectancy is low, health and living conditions are poor.

The life expectancy in 1920 was just 40 years, rising to 43 in 1950, 48.4 in 1960 and 52 in 1972; the goal for 1980 is 59.5.

#### Health Indicators

Dr Defillo says that health indicators enable us to evaluate the physical well-being of individuals and the services offered to maintain and restore health. They also indicate factors jeopardizing health and the way to eradicate them.

The basic indicators are concerned with personal, family, social and economic factors.

With regard to personal indicators, Dr Defillo points to life expectancy at birth, nutritional levels, mortality rates, disease distribution according to population group, environmental conditions and demographic factors.

Indicators cover individuals, areas, departments, institutions and policies involving both public health care and other secretariats and institutional programs.

Dr Defillo says that mortality rates, as health indicators, have an impact on life expectancy and are, in turn, influenced by the variety and quality of nutrition.

A high and broadly based mortality rate sharply reduces life expectancy and is prompted by outbreaks of disease, lack of education and insufficient, poor quality food.

Additional factors are the emotional stresses of Dominican families and the appearance of new diseases related to so-called modern lifestyles.

#### Increased Infant Mortality

Santo Domingo EL CARIBE in Spanish 1 Oct 80 pp 1, 6

[Article by Eunice Lluberes]

[Text] Malnutrition-caused infant mortality has claimed increasing numbers of victims over the past 3 years, a development that unquestionably indicates worsening health care conditions and a poorer quality of life.

This increase coincides with a drop in farm output, a rise in the prices of basic commodities and a falloff in family income due to inflation.

In 1977, 170 infants out of 6,925 died of malnutrition. Official statistics show that in 1978, 201 of 5,794 died of the same cause, with the number rising to 305 out of 5,711 in 1979.

Adequate nutrition is unavailable to 75 percent of Dominicans, mainly because of the current distribution of income.

These major underprivileged, malnourished segments of society depend on the solutions that the farm sector can come up with, in the judgment of Dr Bernardo Defillo, who furnished the data.

Malnutrition was the direct cause of death in 222 infants of the 7,195 recorded births in 1974.

In 1975 it caused the death of 208 children of a population of 7,028, and in 1976, 161 of a total of 6,668.

Severe vitamin, calorie and protein deficiencies constitute one of our oldest health problems and in proportion to its seriousness, one of the least dealt with.

Over the last 10 years, the government health care sector offered coverage to 35 percent of the people requesting some kind of service.

The private sector handled close to 17 percent of the population, which means that 48 percent received no medical or health care at all even though they needed it.

Malnutrition as a chronic national problem stems from a diet with clear-cut calorie and protein deficiencies.

Estimates are that only 25 percent of the population receives proper nutrition.

Some 49 percent of Dominicans, especially children, suffer from mild malnutrition; 22 percent from moderate malnutrition, and 4 percent from serious malnutrition.

A 1979 public and private sector survey demonstrated that 26.3 percent of children under age 5 suffer from level 2 malnutrition, and 2.9 percent from level 3.

It also found that 63 percent of pregnant women suffer from anemia due to improper nutrition.

In Dr Defillo's opinion, it is paradoxical that as late as the first half of this year a national policy on food and nutrition is still in the study stage.

In spite of all efforts, food and nutrition programs are still inadequate; salt is still insufficiently iodized, and the necessary amount of Vitamin A is not being added to domestically consumed sugar.

As of the mid-1970's the most malnourished population groups were families with earnings of less than 300 Dominican pesos a month.

The highest percentage of malnourished individuals was found in groups earning from 1 to 100 pesos a month.

Dr Defillo has defined four nutritional levels on the basis of monthly family income.

The first group obtains 1,420 calories a day and 28 grams of protein; this represents half of the population.

The second group takes in 3,150 calories and 86 grams of protein a day, accounting for 6 percent of the population.

Another group is below the first in income and nutritional level, and a fourth is slightly below the second in those terms.



Malnutrition among groups with low levels of income and nutrition is evidenced by small, skinny children whose ages are impossible to estimate, with swollen stomachs and discolored or straw-colored hair.

In general, these children behave apathetically and indifferently and often have bulging eyes in drawn faces.

Dr Defillo contends that the moderate and severe levels of malnutrition among these children cause mental backwardness, poor performance in school, frequent infectious, bronchial and parasitic illnesses and, ultimately, increased disease and mortality rates.

The doctor relates infant malnutrition to maternal malnutrition, especially during pregnancy and the nursing period, when women ought to be consuming 132 percent of the required calorie intake and 127 percent of the standard protein level.

Malnutrition, he says, is aggravated by changes in eating habits, poor preparation of food and low farm output and productivity.

A normal Dominican diet should include 2,320 calories and 60 grams of protein a day.

For growing youngsters, the protein intake should be  $1\frac{1}{2}$  to 2 grams per kilo of body weight.

According to official statistics, youngsters between the ages of 9 and 14 continue to pay for nutritional deficiencies with their lives.

In 1974, 116 of a total of 1,158 youngsters died. In 1975, 65 of 1,059 passed away.

The following year, 48 of 1,011 died; in 1977, 50 of 997; in 1978, 73 of 933, and in 1979, 77 of a total of 1,031.

During this entire period the mortality rate among infants and the newborn, including death caused by malnutrition, was 20.1, as measured in 1979.

The death rate among the newborn was 16.6 and among infants, 33.8, which represents an insignificant improvement over the 4 previous years and a moderately significant improvement compared to the outset of the decade.

The death rate for pregnant girls between ages 10 and 14 was 1 out of 148. The rate was 24 for the 15 to 19 year age group; 37 for 20 to 24 years of age; 31 for women between 25 and 29; 22 in the 30 to 34 year age group; 13 among women 35 to 39; 5 for women over age 40, and 5 among undetermined age groups.

Statistics show that the death rate was almost double for the first five groups in comparison to the year before, while offering no significant changes from the indices at the beginning of the decade.

MORTALIDAD GENERAL REGISTRADA SEGUN REGIONES Y AREAS DE SALUD.-  
REPUBLICA DOMINICANA 1979. (1)

REGIONES Y AREAS	* POBLACION ESTIMADA (2) Al 1ro. DE JUNIO 1979	Nº. DE (3) DEFUNCIONES	(4) TASA X 1,000 HABITANTES
PL. PAIS (5)	5,275,410	25,757	4.9
Núcleo Central (6)	1,787,426	7,825	4.4
Area Distrito Nacional	1,379,198	7,229	5.2
" San Cristóbal	408,228	596	1.5
REGION I	554,468	4,357	7.8
Area Peravia	152,341	670	4.5
" Azua	99,608	258	2.6
" San Juan	233,424	2,308	9.8
" Elías Pina	67,005	1,051	15.1
REGION II	1,161,303	4,659	4.0
Area Santiago	505,043	218	0.4
" Españillat	141,445	544	3.6
" Puerto Plata	215,337	263	1.2
" Monte Cristi	79,355	766	9.7
" Dajabón	65,194	2,708	35.4
" Santiago Rodríguez	54,446	190	3.5
" Valverde	92,533	370	4.0
REGION III	992,749	4,931	5.0
Area Duarte	246,594	1,341	5.4
" Salcedo	97,270	407	4.2
" La Vega	362,425	412	1.1
" Sánchez Ramírez	121,705	327	2.7
" Ma. Trinidad Sánchez	100,437	1,814	18.1
" Samaná	64,228	630	9.8
REGION IV	290,633	1,330	4.6
Area Barahona	151,841	321	2.1
" Bahoruco	83,712	701	8.4
" Independencia	37,377	231	6.2
" Pedernales	17,703	77	4.3
REGION V	488,741	2,648	5.4
Area El Seybo	141,769	337	2.4
" San P. de Macoris	157,281	824	5.2
" La Romana	85,246	771	9.0
" La Altagracia	104,445	716	6.9
EXTRANJERO (7)		27	

\* OFICINA NACIONAL DE ESTADISTICA. (8)

Key:

1. Recorded deaths by regions and health areas, Dominican Republic, 1979
2. Estimated population as of 1 June 1979
3. Number of deaths
4. Rate per 1,000 inhabitants
5. Nationwide
6. Central zone
7. Overseas
8. National Statistics Office



## BRIEFS

ENCEPHALITIS EPIDEMIC--New Delhi, 17 Oct (AFP)--A raging epidemic of encephalitis in recent months has claimed 453 lives in six eastern districts of Uttar Pradesh state, it was reported today. Gorakhpur was worst-hit with 350 deaths. About 1,000 villages in these districts have been affected. [Text] [Hong Kong AFP in English 1253 GMT 17 Oct 80 BK]

ENCEPHALITIS IN UTTAR PRADESH--New Delhi, Oct. 10: Encephalitis, which has broken out in battered districts of Gorakhpur, Deoria and Basti in north Indian Uttar Pradesh, has claimed 225 lives during the past month, it was reported here yesterday, reports AFP. Quoting official information received at the state capital Lucknow, the reports said the number of seizures during the period was over 800. [Text] [Kathmandu THE RISING NEPAL in English 11 Oct 80 p 2]

CHOLERA-FREE ZONES--The government has checked and ascertained that there has been no case of cholera during preceding 20 days in the following locations and have declared them as cholera free zones for the purpose of the international Health Regulations, reports ENA. [as published] The locations are quarantine camp for the Hajj pilgrims surrounded by wall consisting of about 3,30,880 square feet of land bounded by eastern periphery road in the east vacant land in the West Agargaon, Taltala in the north and Government new colony in the south and Dacca International Airport. [Text] [Dacca THE BANGLADESH OBSERVER in English 30 Aug 80 p 8]

CSO: 5400

## HEALTH MINISTER CONSIDERS CHOLERA STILL A THREAT

Nairobi DAILY NATION in English 17 Oct 80 p 4

[Text]

**CHOLERA** is still a threat to Kenyans, Assistant Health Minister James Njiru said.

Moving a vote on the Ministry, Mr. Njiru told the House: "There are still pockets of outbreaks in several districts."

He said communicable diseases like malaria, rabies, plague and TB were also a major threat. Areas mostly affected by cholera, Mr. Njiru pointed out, were Kwale, Mombasa, Kisumu, Busia, Bungoma, West Pokot, Turkana and Nairobi.

To eradicate the diseases, it was important to establish inter-country joint programmes because the diseases could easily spread across the borders.

Mr. Njiru said the Ministry would try to control communicable diseases.

The Ministry had also started a TB/Leprosy eradication programme and the first batch of clinical officers were being trained.

"Intensive public health education on the use of toilets, cleanliness in food-handling and preparation, combined with control of vectors, ensures control of these diseases," Mr. Njiru said.

A management unit for immunisation, Mr. Njiru said, had been established after one-and-a-half years of preparation and detailed planning was currently being undertaken.

Mr. Njiru told the House: "Although actual immunisation is expected to start early next year, the cold chain equipment has been ordered and baseline data under collection."

Mr. Njiru said manpower shortage in the Ministry continued to affect its operations.

He said plans to strengthen training programmes for all cadres of health staff were under way, adding that there was urgent need to increase the number of trainee nurses at Kenyatta National Hospital.

## Urgent

"There is also a very urgent need to start a second registered nurses training school in the next few years," Mr. Njiru stressed.

The Assistant Minister said a survey to establish the extent of drugs and alcohol abuse in secondary schools had been initiated.

A two-year course would be started later this year to train psychiatric social workers in rural areas, he said.

Mr. Njiru said the Ministry's priority was to ensure that drug-reached wananchi, particularly in rural areas.

He said decentralisation of Central Medical Stores had already been initiated, with depots in Kisumu and Mombasa. Nakuru, Nyeri and Isiolo would also have depots, he said.

A new system of supplying drugs to rural health centres in regular prepacked kits would be introduced by the next financial year, the Assistant Minister said.

Saving the Ministry required K47,859,972 for "both

development and recurrent expenditure during the current fiscal year. Mr. Njiru added that more emphasis would be placed on developing and conducting medical research in selected fields.

Current research activities were on malaria, bilharzia, kala-azar, leprosy, TB and diarrhoea as well as on nutrition and traditional medicines, he said.

Mr. Njiru outlined various activities to which funds would be directed and noted that greater attention would be paid to curative health services.

This area would include improvement of in-patient services at Kenyatta National Hospital, establishment of new and better out-patient departments in provincial hospitals and construction of new district hospitals at Nyamira and Iten, he said.

## NEW CASES OF SLEEPING SICKNESS CAUSE INCREASED TSETSE CONTROL

Nairobi DAILY NATION in English 14 Oct 80 p 13

Text)

**EXPERTS** are to meet to find ways of combating sleeping sickness in Lambwe Valley, South Nyanza.

Mbita MP Alphonse Okuku said the meeting would be held next month, chaired by the director of the International Centre for Insect Physiology and Ecology, Prof. Tom Odhiambo.

About 40 people were admitted to hospitals in South Nyanza District last month suffering from the disease.

Mr Okuku, who is an Assistant Minister for Information and Broadcasting, told a baraza at Ogonjo chief's camp, Lambwe, that the disease was spreading rapidly.

He said less than 100 people had been attacked by the disease

since 1968, but 32 cases had been diagnosed this year alone. Tsetse flies are the carriers of the disease.

Mr Okuku added that thick bush along the River Olambwe was the home of a large concentration of tsetse species known as *Glossina pallidipes*.

He said that waterbuck, warthog and cattle were reservoirs for the sickness, the animals abounding at Lambwe Game Reserve.

Mr Okuku said the modern tactic against tsetse flies was to move people and animals away from infested areas. Domestic animals should also be injected with "Samerin" every three months.

Areas frequented by people should be sprayed with insecticide and then cleared and idle land should be allocated to people willing to clear the bush and cultivate it, said the MP.

Mr Okuku said all bush areas should be cleared.

CS/1 3400

## LEPROSY PREVALENT IN SINALOA, COLIMA STATES

Mexico City EL SOL DE MEXICO in Spanish 9 Sep 80 p 2-F

[Text] Culiacan, Sinaloa--Sinaloa ranks second in the nation in the incidence of leprosy, a disease which affects in our state 2,000 people who are currently under treatment and approximately 4,000 more who are trying to remain anonymous.

The previous information was provided by the chief of preventive medicine of the coordinated services of public health in the state, Dr Domingo Vega, who pointed out that in Sinaloa the leprosy rate has decreased slightly, which has allowed us to drop from first place in the rate of leprosy to second place on the national level.

Despite the preceding statistics, he indicated that the number of persons affected is still too high, despite the efforts of the health sector to detect and treat this type of disease. According to the research carried out on this subject by health and welfare authorities, an average of 150 new cases of leprosy are detected annually; this disease, in the opinion of Dr Domingo Vega, could be completely eradicated from the state if we had great economic resources.

Still, the official pointed out, with the resources at our disposal we have managed to detect and treat many of these victims, although there are also many who remain undetected. The doctor believes further that, generally, the thinking of the leprosy victim has changed, so that not all of them try to hide their disease, as used to happen up until a few years ago.

8956

CSO: 3400

BRIEFS

CHOLERA CASES--The national director of preventive medicine, (Jorge Cabral), has told AIM (MOZAMBIQUE INFORMATION AGENCY), that the cholera outbreak has not yet been completely eradicated in Maputo Province. He said that in Magde and Manhica districts his services had confirmed 17 cases and 6 others were (being investigated). The cases in Magde and Manhica had been detected in August. [Excerpt] [LD260256 Maputo Domestic Service in Portuguese 0430 GMT 25 Oct 80 LD]

CSO: 5400

# ENCEPHALITIS DECLINING IN NEPAL

Kathmandu THE RISING NEPAL in English 14 Oct 80 pp 1, 4

[Text] Viral encephalitis which had broke out at some part of the country recently are now gradually declining, report RSS. [as published]

According to chief of the infectious disease section Dr. Indra Bahadur Khatri who returned here after making a study in that connections in the Lumbini Zone now there is no dearth of medicine for encephalitis at all the hospitals of Lumbini Zone. [as published]

He said that the report that a large number of patients were suffering from encephalitis turned out to be untrue as his inquiry with local hospital superintendents showed that only nine encephalitis patients were hospitalised there.

Stating the local administration and panchas have been providing possible cooperation in controlling the disease, he said that efforts are being made to find the ways of enlisting cooperation from all quarters and as well as of controlling culex mosquitoes which are main carrier of the disease.

Health education teams are also educating the people in different districts of the zone on the ways of controlling the disease.

A health team has already been sent to control the disease in the Narayani Zone, he informed.

The team of Health Service Department which went to the Lumbini Zone to make extensive study about the spread of viral encephalitis in Lumbini Zone has been already returned here after completing the study.

CSO: 5400

ENCEPHALITIS CASES AT NARAYANI HOSPITAL

Kathmandu THE RISING NEPAL in English 23 Oct 80 p 1

[Text] Birgunj, Oct. 22--Bandana Adhikari, 21, of the local campus, died of viral encephalitis on the 13th day of her admission to the local hospital, reports RSS.

Out of the 86 persons admitted at the Narayani Zonal Hospital since September 6 this year, 44 were completely cured, eight persons left the hospital voluntarily and 23 persons died, it is stated.

Altogether ten persons suffering from the disease are being treated at the hospital at present out of which two are reported to be in serious condition.

Each week one or two persons still report for treatment of the disease at the hospital.

About six or seven persons are reported to be suffering from the disease in Dhulabari and Bahundangi of Jhapa.

So far 3 persons have died.

Out of the patients some are being treated at the Kosi Zonal Hospital and some are being treated in India.

Malathion is being sprayed in the affected areas, the Malaria Eradication Association branch office have stated.

CSO: 5400

HIGH PERCENTAGE OF RABIES CASES IN NEPAL

Kathmandu THE RISING NEPAL in English 23 Oct 80 p 1

[Text] Kathmandu, Oct. 22--The highest percentage of people who suffer from dogs' bites and in many cases the resultant hydrophobia are possibly in Nepal, reports RSS.

Most of the dogs get made during mid-November to mid-March in Nepal, according to an epidemiological bulletin published by the infectious disease division.

Altogether 1,650 rabies patients were treated at the infectious disease unit of Teku Hospital within the same period last year.

Of the total 1,650 rabies patients, 616 men and 263 women above the age of 15 and 408 children below the age of 15 were treated at the infectious disease hospital.

Five people infected by mad dogs died last year.

Likewise, of the total 1,007 persons bitten by mad dogs in Kanchanpur district 12 persons died last year.

Three of the total 243 people bitten by mad dogs died in Kailali district.

Hydrophobia is a dangerous disease without any cure.

An assistance of Rs 1,20,000/- had been made available to 21 town panchayats to kill stray dogs with a view to checking the disease but none of the town panchayats except Hetauda, Bharatpur, Lalitpur, Siddharthanagar, Tansen and Dhangadi town panchayats killed stray dogs, the bulletin adds.

CSO: 5400



# INCIDENCE OF LEPTOSPIROSIS HIGHER IN NORTH ISLAND

Christchurch THE PRESS in English 19 Sep 80 p 16

[Text]

There are not the number of cases of leptospirosis in an area like Canterbury that there are in the North Island because there are fewer dairy cattle in this part of the country and less dairying.

This was the reason given recently by Dr M. A. Briesman, Deputy Medical Officer of Health in Christchurch.

He said that the two main types of the disease came from cattle and pigs with soil and climatic conditions also being involved. There were certain areas in Canterbury where if the disease organisms were passed in an animal's urine they would survive longer in the soil.

In June, out of 31 cases of the disease reported throughout the country, the one reported in the Nelson-Greymouth district was the only one in the

whole of the South Island and in the previous month when the New Zealand total was 45, there was only one in the South Island and it came from the same district. In the first six months of the year only two were reported from the Christchurch district and two from the Tairāra district but 27 cases in the Nelson-Greymouth area.

In the year to the end of June this year over the country 823 cases were reported, while for some recent calendar years the figures were 1978, 437; 1977, 341; 1976, 388; 1975, 480; and 1974, 509.

It has also been suggested that the warmer climate in the main dairying areas in the North Island resulting in people engaged in dairying wearing less protective clothing, could be a factor in the trouble there.

CS0: 5400

## PAKISTAN

### BRIEFS

GASTROENTERITIS IN KASUR--Kasur, Oct. 13--Hundreds of people of Raja Jang town here are reported down with gastro-enteritis which has also caused a few deaths. The reason being given by the Health authorities is the contaminated and infected drinking water being supplied through pipes which are broken at various places. The DHO has carried out an intensive inoculation drive and advised people to drink water after boiling. People have urged the replacement of broken pipes and chlorination of water. [Text] [Lahore THE PAKISTAN TIMES in English 14 Oct 80 p 6]

CSO: 3400

#### FOUR TYPES OF RABIES VACCINE NEWLY DEVELOPED

Beijing GUANGMING RIBAO in Chinese 6 Sep 80 p 1

[Text] For the first time in China, the Wuhan Research Institute of Biological Products and related units successfully produced a rabies vaccine of four types, using fieldmouse kidney tissue culture, to reach the advanced standard of the world. A blank page in China's pharmaceuticals has thus been filled.

The origin of rabies infection is rabid dogs; rabid cats, etc. form the second important sources. Rabies prevails extensively in the world. In some areas of China, incidence of rabies has a tendency of increasing. For almost a century, sheep brain vaccine has generally been used to prevent this disease in all countries of the world. The preventive effect of this vaccine is positive, but it can easily induce anomalous nervous reactions to cause a certain number of patients to die or to become irreversibly disabled. For the purpose of resolving this problem, beginning in the 1960's, some countries have started to study tissue-cultured vaccines. To date, very few countries have succeeded.

The Wuhan Research Institute of Biological Products began to study tissue-cultured vaccine in 1965. First of all, they had to produce the toxin required in the experiment. After they accomplished that, a cooperative group was organized with the Pharmaceuticals and Biological Products Inspection and Certification Center of the Ministry of Public Health, and Lanzhou and Changchun Research Institutes of Biological Products. In 1974, the group succeeded in making four types of rabies vaccines for human use, using fieldmouse kidney tissue culture; they are primary vaccine, auxiliary vaccine, primary vaccine concentrate, and auxiliary vaccine concentrate. On the basis of this success, and with the help of epidemic prevention departments of Guangxi, Hunan, Jiangsu, Hubei, and related districts, cities, and counties, the research institute carried out extensive tests to improve the quality of the vaccines and to observe reactions to the vaccines by healthy persons and by victims of bites of rabid animals. A total of 528 human vaccination cases were observed. Of the group, 301 were victims of bites of rabid animals. Results of the tests indicate that the effects of all four vaccines are satisfactory, and the safety of these vaccines surpasses that of the sheep brain vaccine, and more importantly, the anomalous reaction of myeloencephalitis induced by nerve tissues is avoided. At the certification conference called by the Hubei Provincial Bureau of Public Health in November 1979, the related specialists, scientists, technicians, and physicians unanimously confirmed the vaccine as being effective, causing few reactions, inducing no anomalous reactions, and requiring fewer injections (3-5 injections in the entire treatment procedure.) They suggested that the Ministry of Public Health assign related departments to produce the vaccines officially so that they may replace the sheep brain vaccine as soon as possible.

## CHOLERA EPIDEMIC IN TRANSVAAL CONTINUES

Cases Number 162

Johannesburg THE CITIZEN in English 25 Oct 80 p 6

[Text]

A TOTAL of 162 cases of cholera have been reported since the outbreak of the disease in the Eastern Transvaal, the Department of Health announced in Pretoria yesterday.

Of these, at least 33 cases were not visibly ill and were the result of intensive surveillance.

Four fatalities have been reported, and in each instance the victims died before they could be treated in hospital.

All measures to control the disease are being applied. People who had had direct contact with victims are being immunised and water supplies in infected areas are being purified.

### Swaziland Border Controls

Johannesburg THE CITIZEN in English 16 Oct 80 p 7

[Article by Keith Abendroth]

[Text] THE Swazi government has imposed a blanket no-entry ban on all tourists and visitors from the Eastern Transvaal who do not have valid cholera immunisation certificates.

Meanwhile, a Department of Health spokesman said yesterday that the cholera outbreak in the Eastern Transvaal, which appeared to centre on the Malelane area, had now reached a total of 38 confirmed cases, with three deaths. A Swazi government spokesman confirmed from Mbabane yesterday that the ban was being enforced and had been put into action yesterday. It would operate until further notice and until the cholera outbreak in the Transvaal lowveld had been stamped out, he said.

The ban applied not only to unimmunised people from the whole of the Eastern Transvaal, but also to food trucks or vans, he said.

### Visitors

Visitors from other parts of the country were still being allowed through the Ngwenya border post, he said.

Officials at the Gohok post — on the South African side of the border, east of Carolina — said yesterday that "many" people from the Eastern Transvaal who had tried to enter Swaziland yesterday had been turned back.

The South African Health Department spokesman said that a statement

would be released on the overall cholera position today.

The number of confirmed cases had risen to 38 from Tuesday's 33. Three people had died — but if the disease was identified and treated in time, it was not necessarily fatal.

### Survey

An epidemiological survey team of the Department had visited the affected area and it appeared that the impact area was limited to the some where water was used from the Crocodile River.

However, the Poort river might also be polluted further along its reaches and precautions should be taken.

SPAIN

BRIEFS

RESULTS OF 'LEGIONNAIRE'S DISEASE'--The management of the Rio Park Hotel in Benidorn, where several guests suffered from the illness called Legionnaire's Disease over the summer, learned today of the results of the investigations made at the establishment by the health authorities. The bacteria causing the Legionnaire's Disease was found in the last three or four drops of water remaining in the shower head after use. [Text] [LD172350 Madrid Domestic Service in Spanish 2100 GMT 17 Oct 80]

CSO: 5400

TANZANIA

BRIEFS

CHOLERA VICTIMS--Sumbawanga--Five people have died of cholera in Muzi Division in Sumbawanga rural district. The medical officer in Rukwa region, Ndugu John (Maro) said in Sumbawanga town yesterday that the deaths had occurred between 20 and 27 October. He said another 10 people had been admitted to a health center in the area and were now undergoing treatment. Ndugu (Maro) added that the Muzu division had been placed under quarantine with effect from 27 October to stop the spread of the disease. He expressed disappointment at the habit of some villagers who contravened quarantine rules, thus causing the disease to spread. The officer said a group of doctors and nurses had left for Muzi the day before yesterday. This is the fourth cholera outbreak in Umbawanga rural district in the last 10 months. [Excerpt] [LD300450 Dar es Salaam Domestic Service in Swahili 1000 GMT 29 Oct 80 EA]

CSO: 5400

BRIEFS

FOX OVERPOPULATION SPREADING RABIES--A fivefold increase in fox population in the forests of Southern Bohemia, particularly in the Prachatice and Vimperk districts, has caused rabies to spread. Already 18 rabid fox concentrations have been identified and destroying of the fox has begun. The action calls for reduction of the fox population to about one fox per 500 hectares, which should prevent the spreading of rabies. [Bratislava SMENA in Slovak 14 Oct 80 p 5]

CSO: 5400

## BRIEFS

CATTLE VACCINATIONS--Dilla--A total of 135,669 heads of cattle and pack animals have been vaccinated in Tentele district, Erero province of Sidamo region, last year. Out of the total, 71,517 heads of cattle received vaccination against rinderpest, and 47,227 others against various other diseases, according to Comrade Aklilou Makonnen, the provincial administrative service secretary. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 10 Oct 80 p 8]

ANIMAL VACCINATIONS--Nekemte--The Animal and Fishery Resources Development Office in Wollega region last year vaccinated a total of 1,793,727 animals against various diseases. Out of the total, 912,285 received vaccinations against rinderpest and 94,126 against internal and external parasites, according to Comrade Dr. Ahmed Abdurahman, a representative of the office. Comrade Dr. Ahmed also revealed that 125 persons had undergone training in the preparation of hides and skins. /Text/ /Addis Ababa THE ETHIOPIAN HERALD in English 1 Oct 80 p 6/

CSO: 5400



## BRIEFS

CATTLE VACCINE DEVELOPED--An Israeli scientist has developed a vaccine against a germ which causes poisoning and death of newly born animals. The germ is called kuli anthroptogeni and is similar in its characteristics to the cholera germ. The vaccine was developed by Dr Ze'ev Treinin, head of the immunology department at the Kimron Veterinary Institute at Beit Dagan. Dr Treinin reported yesterday that the germ generally appears on the day of birth of the animal and the poison secreted by the germ causes the disease. The data show that the disease causes a damage of 70 million Israeli pounds to the cattle industry in Israel because of the death of calves. The team of experts has developed a vaccine which immunizes the animal on its day of birth against the disease. They have discovered that the germ is active only on the first day of the animal's life, thus the vaccine is administered immediately upon birth. Ma'abarot Company, which makes veterinary vaccines, has funded most of the research, and has acquired the rights to produce the vaccine and market it in Israel and abroad. [Text] [Tel Aviv MA'ARIV in Hebrew 4 Sep 80 p 16] 9565

CSO: 5400

## AFRICAN SWINE FEVER REPORTED IN SARDINIA

Cagliari L'UNIONE SARDA in Italian 25 Sep 80 p 8

[Article by Alberto Testa: "Arborea: Mass Slaughter Amidst Polemics"]

[Text] Arborea, 24 Sep--The myth of the cleanest agricultural town on the island has crumbled with the arrival of African swine fever which, moreover, has struck one of Arborea's "institutions," the glorious Sardinian Land Reclamation Company (SBS). Almost 400 suspected swine were killed this morning and this afternoon in the company's swine division in a scene of carnage with excavated ditches and an enormous bonfire to destroy the carcasses of these innocent animals which moaned under the deadly blow of the exterminating "pistol." "We are certainly not Nazis," Dr Antonio Falconi, the Oristano district veterinarian's assistant, remarked ironically, "and if it had been possible, this carnage would have been avoided; however, when the presence of the disease is confirmed, we must take drastic action to create a biological void in the infected breeding facilities. We are presently visiting the area's various breeders to inform them of preventive measures essential to keep the disease from spreading. However, the problem goes beyond that point: the breeders do not trust the regional authorities as there have been too many delays in the payment of indemnities; one must wait months, even a year, to be compensated for the damages incurred. If there were more promptness in the bureaucratic mechanism, many breeders would surely have no difficulty in reporting the disease; instead, they prefer not to do so; they get rid of the infected animals and thus help spread the pestilence."

This is what happened a week ago in the vicinity of a pig farm located between the communes of Milis and Seneghe where two swine were mutilated after succumbing from the terrible infection; their ears had been severed to prevent the owner from being identified. Someone speaks of "plague spreaders" sent from other infected areas (mass slaughter in Sardinia has already struck 45,000 swine causing damages of about 5 billion lire) forcing small breeders in particular to their knees and thus favoring large firms which, for now, have remained unharmed by the contagious disease. However, it is very probable that there is a desire by some to create a big dust cloud around this mystery to hide responsibilities which might fall directly on organizations established to safeguard the community's health.

The preventive measures ordered in the Oristano district where the disease broke out were not extended to all breeding farms, as also deplored by a Seneghe breeder. Entering the "suspected area" of "Ala Birdis," scarcely 200 meters from Arborea's main square, has been made very easy: in closing the pig farm, care was taken to

display posters prominently, but no guards were provided. Any involuntary "plague spreader," driven by curiosity, could cause havoc: in the area between Arborea and Terralba there are still 4,000 swine not contaminated up to now, and it takes almost nothing to spread the virus. Damage to breeders would increase causing a crisis among other firms which specialize in the breeding of swine, a sector rapidly expanding due to increasing demand.

In the words of communal veterinarian Giovanni Panichi, "The killing of swine has caused enormous damage to SBS considering that the company has been depending on income from swine breeding to offset indebtedness in other activities. A lack of ready means to cover the damage has created a situation which has not failed to worry the company's employees, some of whom--directly involved in the swine sector--see their jobs threatened. However, the decree to kill the swine was unavoidable, since African swine fever has been confirmed in four animals."

SBS Director Antonio Migliari is somewhat perplexed about such a drastic measure: "Before killing the swine, they should have waited at least a few days to see if the virus had really struck other animals, since the death rate was very low. Among other things, only the fattening department is involved in the pestilence, while the breeding sector has remained unharmed. However, a psychosis took over, and steps were immediately taken to proceed with the slaughter. In addition to lost capital, an enormous genetic resource has been lost, and it will take considerable effort to begin again from zero. However, we have a clear conscience since, at the first sign of trouble, we promptly alerted the head of the Cagliari Animal Protection Institute."

In any case, it must be said that the disease arrived at the Arborea pig farm after a small Marrubiu breeder had reported the outbreak of the disease in two swine purchased a short time before from SBS.

After the seizure of a few head which were to be sold in two butcher shops in Terralba and Marrubiu, swine fever also contaminated consumers psychologically: just today, the price of pork at the Oristano market dropped to 6,000 lire per kg. "In Arborea," Mayor Ezio Collu said, "there is no psychosis because we are sure that the phenomenon has been checked and, moreover, from a health preservation standpoint the town has always been very careful. Now, in addition to the damage suffered by the breeding farms, there is a danger that the families of the 300 persons permitted to raise swine through an ancient gastronomic tradition--that of having pork as the basis of nearly all their daily meals--will also feel the crisis, at least from a food standpoint."

"Nothing is being said of another kind of contamination, that of a name like Arborea, always a symbol of rural splendor and trustworthy products, now being associated with a terrible pestilence."

8968

CSO: 5400

## BRIEFS

**EAST COAST FEVER, TRYPANOSOMIASIS**--Scientists are working out methods aimed at making cattle more resistant to ticks. The director of the Nairobi-based International Centre of Insect Physiology and Ecology, Prof. Thomas R. Odhiambo, said this at the weekend when he met President Carter's advisor on science Dr. Frank Press, at the centre in Chiromo. Prof. Odhiambo said that scientists at the centre had discovered that when cattle had been exposed to a certain amount of ticks, they become resistant to the East Coast Fever. He, however, said cattle would suffer if exposed to infected ticks. He said the centre had already achieved some success in the control of trypanosomiasis (an animal disease caused by tsetse fly in the tropics). He said the centre's success would be useful not only for Kenya but for many tropical countries. [Text] [Nairobi DAILY NATION in English 29 Sep 80 p 3]

**FOOT-AND-MOUTH DISEASE**--An outbreak of foot-and-mouth disease has been reported in Mbale and Sagalla locations of Taita-Taveta District. Releasing the quarantine notice, the district veterinary officer, Dr. Robert Shavulimo, said all livestock, and their products, should be detained within the affected areas. Dr. Shavulimo added that no livestock would be moved from or into the affected areas during the quarantine.--KNA [Text] [Nairobi DAILY NATION in English 14 Oct 80 p 14]

**WILDEBEESTE POPULATION REDUCED**--The Government is taking measures to reduce the fast growing wildebeestes population which has caused the death of livestock in Kajiado District. Already more than 600 wildebeeste which cause a certain disease, have been killed while thousands more have been dispersed by aeroplanes. This was said by an Assistant Minister for Environment and Natural Resources, Mr. Philip Leskey, when replying to a question from nominated MP J.K. Nepatao. Mr. Leskey told the House his Ministry was aware of the problems caused by wildebeeste and that action was being taken to save the situation. He said there were about 750,000 wildebeeste in Kenya. [Text] [Nairobi DAILY NATION in English 10 Oct 80 p 4]

MALAWI

BRIEFS

**RABIES PROGRAM--Mzuzu--Tuesday--**A twenty day-long rabies tie-up order is in force in Karonga as from Monday, October 20, a spokesman for the Regional Veterinary Office announced in a circular letter here. During the order all dogs must be secured and those uncared for with no sign of vaccination will be 'considered unwanted' and therefore shot dead immediately, the spokesman warned. Dogs aged one month and above will be vaccinated during the period of the order, he added. [Excerpt] (Blantyre DAILY TIMES in English 22 Oct 80 p 5)

CSO: 5400

# GOVERNMENT TRIES TO CONTAIN OUTBREAK OF FOOT-AND-MOUTH DISEASE

Windhoek THE WINDHOEK ADVERTISER in English 15 Oct 80 p 2

[Text]

**OUTBREAK** of foot and mouth in Eastern Caprivi has led to the re-introduction of permits for controlling the movement of cattle in all the controlled areas of SWA.

This will become effective as of November 1.

A special motion to this effect was passed at yesterday's session of the SWA Agricultural Union annual congress currently in progress in Windhoek, after the situation had been sketched by the Director of Veterinary Services, Dr H Schneider.

The controlled areas in SWA are the Windhoek district and all districts to the north, Rehoboth, and the western part of Mariental bordering on Botswana.

The recent outbreak of foot-and-mouth held great dangers for the cattle industry if effective measures were not implemented immediately to counter its spread to other areas.

The outbreak of foot-and-mouth in Eastern Caprivi was apparently attributable to dis-

eased animals from the Chobe National Park, Botswana and Zambia crossing the Chobe and Zambezi rivers into SWA.

Dr Schneider said that controls and checkpoints had been set up by his department along the Okavango border to prevent the disease from spreading west- or southwards.

There was little danger that the foot-and-mouth epidemic would spread throughout SWA, and that the cattle exports would be affected.

Overseas beef importing countries' health regulations required that all necessary measures were taken here to ensure that beef leaving SWA would not be contaminated, explained Dr Schneider.

It was not necessary at this stage to introduce compulsory cattle inspections in addition to those conducted on a regular basis as was standard practice, said Dr Schneider, but only to ensure that the Eastern Caprivi occurrence did not spread.

Regarding SWA's neighbouring countries, he said that Zambia, Zimbabwe and Botswana were riddled with foot-and-mouth.

The Botswana authorities had the situation under control, and were producing a very effective vaccine which might be sold to SWA at some stage, should it become necessary.

According to reports from SA, cattle exports from Botswana have been temporarily suspended.

There were fears, said Dr Schneider, that Angola also had a foot-and-mouth epidemic, although it was not known how bad the situation was since there was no direct contact between SWA and Angola.

It was known, however that samples had been sent from Angola to the international veterinary centre in France, and this could mean that there were problems.

Dr Schneider said that the fence along the Botswana - SWA border was in good order, and that his department was conducting an inspection of the entire stretch.

It was only the far north, where Caprivi bordered on Botswana's Ngamiland which was totally infected and the situation had to be closely observed.

BRIEFS

FOOT-AND-MOUTH DISEASE--The possibility that foot and mouth disease might be used as a form of biological warfare against the cattle industry in SWA had already been considered and effective measures had been implemented against the intrusion of diseased cattle from neighbouring states. This came to light during the SWA Agricultural Congress in Windhoek this week, when the director of Veterinary Services, Dr H Schneider, was asked to what extent his department was prepared for such a possibility. His department had access to a range of vaccines which would be introduced in cattle herds in the north, which could effectively counter any strains of foot-and-mouth artificially induced in SWA cattle herds from outside. [Text] [Windhoek THE WINDHOEK ADVERTISER in English 16 Oct 80 p 1]

CSO: 5400



## BRIEFS

**CAMPYLOBACTER INFECTION**--Twenty-eight farms were being investigated as part of the survey of abortion in sheep in Mid-Canterbury, Mr R. C. Gumbrell, veterinary investigation officer of the Ministry of Agriculture's animal health laboratory at Lincoln, said in his latest report on the investigation. Twenty-five of these properties have Campylobacter (vibrio) abortion and the highest incidence has been on a farm at Hinds, where 12.6 per cent of the ewes have been affected. The incidence has varied from less than 2 per cent to 12.6 per cent. Seven farms have had over 5 per cent of their ewes aborting. Abortion losses due to Campylobacter infection continue in other areas, notably the Malvern and Waimate counties. Some ewe flocks report abortions in up to 30 per cent of their ewes. The Ministry hopes to assess the importance of this infectious disease in the Ashburton County and other areas. This will help determine the importance of control measures, such as vaccination, for this disease, which appears to be causing greater losses over the past few years. [Excerpts] [Christchurch THE PRESS in English 29 Aug 80 p 15]

**FISH DISEASES CHECK**--Twenty Ministry of Agriculture and Fisheries livestock officers have received special training in recognising a variety of freshwater fish diseases. They will visit salmon hatcheries and farms to check the health of fish, because of the recent outbreak of whirling disease among rainbow trout at the Silverstream hatchery, near Kaiapoi. A survey of whirling disease has begun at a number of North Island and South Island hatcheries and in wild stock to discover how far it has spread. Whirling disease and six other serious fish diseases were recently scheduled as notifiable diseases under the Animals Act, 1967. If their presence is suspected, they must be reported. Whirling disease is the only one of them known to occur in New Zealand. [Text] [Christchurch THE PRESS in English 9 Sep 80 p 25]

PANAMA

**BRIEFS**

**BOVINE RABIES OUTBREAK**--An outbreak of bovine rabies has been spotted in Bastimentos, Bocas del Toro Province, and five head of cattle have died from it so far. Urgent action is being taken so the disease will not spread. [Panama City Circuito RPC Television in Spanish 1730 GMT 9 Oct 80 PA]

CSO: 2400

UDC 616.988.21:497.1:619.9:614.4

## RABIES IN YUGOSLAVIA--EPIZOOTIC SITUATION SINCE 1975

Belgrade VETERINARSKI GLASNIK in Serbo-Croatian Vol 34, No 7, 1980  
pp 621-631

[Article by Dr M. Petrovic, scientific adviser, Pasteur Institute in Novi Sad; Dr Dj. Panjevic, professor, School of Veterinary Science in Belgrade; Dr C. Paukovic, senior staff scientist, Veterinary Institute in Zagreb; and Dr Z. Zeleznik, senior staff scientist, Veterinary Institute in Ljubljana]

[Text] The most convincing evidence that rabies has topical importance in Europe is provided by the figures of the Center for Cooperation With the World Health Organization (WHO) on rabies in Tübingen (West Germany) for 1978 [1]. That year there were a total of 16,839 infected animals in 16 of the 23 European countries, which is 7 percent more than in 1977. The highest number of animals was recorded in Austria (4,044), West Germany (3,762), Turkey (1,480), Hungary (1,299), East Germany (1,258), France (1,200), Poland (1,139), Switzerland (1,054), and so on. We should stress that in those 16 states of Europe only 4 cases of *lyssa humana* were reported: 2 in Turkey and 2 in our own country, Yugoslavia.

In our previous work [2] we showed the variation of rabies in Yugoslavia from 1946 to 1974, and the last 4 years (1971-1974) were examined in more detail.

In the present paper we show the incidence of rabies in our country in the period 1975-1978 as well as in the first 9 months of 1979.\* After 1974, which represents a culmination of the previous 19 years in the number of infected animals (243) and human victims (12), there comes a period of relative quiet, but the number of cases of human rabies is still alarmingly high (Tables 1 and 2).

In 1975 rabies existed in the same republics (Bosnia-Herzegovina, Macedonia, Serbia and Slovenia) and the two provinces as before, there were a total of 106 infected animals and 8 people died of this disease. The next year,

\* Data on rabies in animals were obtained with the kind help of veterinary services of the republics and provinces.

1976, the number of cases established continued to drop (57), but the number of persons who died of rabies was still disturbingly high--7. In 1977 the number of infected animals rose sharply because of a new epizootic of sylvatic rabies (152), but it is an encouraging fact that only 2 persons died in Kosovo. In 1978 this zoonotic was recorded in all republics except Bosnia-Herzegovina and in both provinces; there were a total of 311 infected animals, which is the highest number in our country over the last 23 years. Two persons became infected and died, 1 in Kosovo and 1 in Macedonia (see the map).

Table 1. Rabies in Yugoslavia in the 1946-1978 Period

Year	Number of Cases		Year	Number of Cases	
	Animals	Humans		Animals	Humans
1946	1422	32	1962	154	1
1947	1610	73	1963	203	9
1948	1210	46	1964	54	2
1949	1055	34	1965	19	-
1950	802	12	1966	19	-
1951	601	19	1967	4	-
1952	705	18	1968	2	-
1953	792	15	1969	5	-
1954	796	24	1970	12	-
1955	430	19	1971	61	5
1956	279	3	1972	110	3
1957	81	4	1973	115	6
1958	139	7	1974	243	12
1959	144	4	1975	106	8
1960	73	2	1976	57	7
1961	89	2	1977	152	2
			1978	311	2

Table 2. Rabies in Yugoslavia, 1975-1978

Republic or Province								
	Bosnia-Herzegovina	Montenegro	Macedonia	Slovenia	Croatia	Serbia Proper	Kosovo	Vojvodina
1975								
Opstinas								
Number	1		1	1		11	12	1
%	1		3	2		10	55	2
Dogs	--		2	--		15	30	1
Cats	--		--	--		1	1	--
Horses	--		--	--		--	1	--
Cattle	--		--	--		7	22	--
Sheep	--		--	--		--	--	--

Table 2 (continued)

	Republic or Province								
	Bosnia- Herce- govina	Monte- negro	Mace- donia	Slo- venia	Cro- atia	Serbia Proper	Ko- sovo	Voj- vo- dina	Yugo- sla- via
Goats	--		--	--		--	--	--	--
Pigs	--		--	--		4	17	--	21
Wolves	2^		--	--		--	1^	--	3
Foxes	--		--	<u>1</u>		<u>1</u>	--	--	<u>2</u>
Total	2		2	1		28	72	1	106
Humans	--		--	--		--	8	--	8
1976									
Opstinas									
Number			3	1		5	11	2	22
%			10	2		5	50	5	5
Dogs			2	--		5	15	--	22
Cats			--	--		--	1	--	1
Horses			1	--		--	1	--	2
Cattle			1	--		2	12	--	15
Sheep			--	--		--	1	--	1
Goats			--	--		--	--	--	--
Pigs			--	--		3	3	--	6
Wolves			--	--		--	--	--	--
Foxes			--	<u>5</u>		--	--	<u>5</u>	<u>10</u>
Total			4	5		10	33	5	57
Humans			2	--		3	2	--	7
1977									
Opstinas									
Number	1		3	2	6	3	8	12	35
%	1		10	4	6		36	27	7
Dogs	1		12	--	3		7	2	28
Cats	--		--	--	1	--	--	4	5
Horses	--		--	--	--	--	--	1**	1
Cattle	--		5	--	--	--	3	--	8
Sheep	--		--	--	--	--	--	--	--
Goats	--		--	--	--	--	--	--	--
Pigs	--		--	--	--	--	2	--	2
Wolves	--		1	--	1*	--	--	2***	4
Foxes	--		--	<u>10</u>	<u>4</u>	--	--	<u>90</u>	<u>104</u>
Total	1		18	10	9	3	12	99	152
Humans	--		--	--	--	--	2	--	2

Table 2 (continued)

	Republic or Province								
	<u>Bosnia- Herce- govina</u>	<u>Monte- negro</u>	<u>Mace- donia</u>	<u>Slo- venia</u>	<u>Cro- atia</u>	<u>Serbia Proper</u>	<u>Ko- sovo</u>	<u>Voj- vo- dina</u>	<u>Yugo- sla- via</u>
1978									
Opstinas									
Number	1	2	1	8	2	1	24	39	
%	5	7	2	8	2	4	54	8	
Dogs	--	5	1	1	1	2	2	12	
Cats	--	--	--	1	--	--	7	8	
Horses	--	--	--	--	--	--	--	--	
Cattle	4	3	--	--	--	--	2	9	
Sheep	--	--	--	--	--	--	7	7	
Goats	--	--	--	--	--	--	--	--	
Pigs	--	--	--	--	--	--	--	--	
Wolves	--	--	--	--	--	--	2***	2	
Foxes	--	--	32	21	1	--	219	273	
Total	4	8	33	23	2	2	239	311	
Humans	--	1	--	--	--	1	--	2	
<hr/>									
^	Skunk.								
^^	Bear.								
*	Wildcat.								
**	Donkey.								
***	Deer.								

The tendency from the previous years continued in the first 9 months of 1979; that is, urban rabies is quieting down, but the epizootic of sylvatic rabies is in full swing. This disease was established in 313 animals and 2 humans.

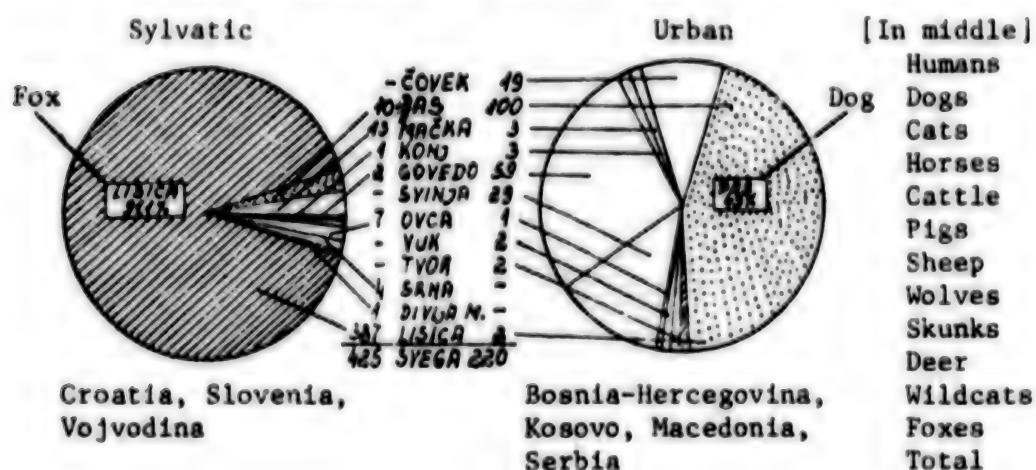
We should emphasize that these figures on the number of animals infected with rabies do not correspond with the real situation, which is much more serious yet, since for various reasons many cases go unrecorded (the animals are not sent in for examination, the material is decayed or is unsuitable, and so on).

#### Forms of Rabies in Yugoslavia

The two "main" forms of rabies in Europe--sylvatic and urban--exist in our country, for the present in separate areas. Comparing figures for the last 4 years (Diagram 1) on urban rabies (Bosnia-Herzegovina, Serbia proper, Macedonia, Montenegro and Kosovo) with the figures on sylvatic rabies (Slovenia, Croatia and Vojvodina), we note the differences and essential characteristics of these two forms. The principal difference lies in the source

of the infection for other animals and man, that is, in the species of animal which usually becomes infected with rabies. With urban rabies it is the dog (100 recorded, or 45 percent), while for sylvatic rabies the fox is convincingly the most frequent species of animal (387 recorded, or 91 percent). In both these forms other domestic animals also become infected, and in the areas with sylvatic rabies more cats were for the first time in our country infected (13, or 3.1 percent) than dogs (10, or 2.4 percent), which certainly constitutes a new hazard to human health [3].

Diagram 1. Rabies in Yugoslavia (1975-1978)



The essential difference between urban and sylvatic rabies is the number of cases in humans. Urban rabies took 19 human lives, and sylvatic none. This fully agrees with WHO figures on the trend of rabies in Europe in 1978 [1], when Turkey and Yugoslavia each had two cases of lyssa humana, but there were none in the countries with sylvatic rabies. By comparison with the 1971-1974 period [2] we note an increase in the total number of cases recorded, with a drop in the number of infected animals for urban rabies, and at the same time a drop in the number of human deaths from this disease, which is certainly encouraging. Nevertheless, by comparison with other European countries Yugoslavia is still among the European states most infected with rabies in terms of the number of animals infected with urban rabies and the number of people who die.

#### Urban Rabies

In our country in 1975 rabies was established in Bosnia-Hercegovina and Macedonia in only two communes (four animals), and there were no human victims. It is interesting that rabies was established in two skunks in Bosanska Krajina [unofficial name of the northwest section of Bosnia-Hercegovina--translator's note] [4], an area in which there had not been rabies in previous years. However, urban rabies in Kosovo and Serbia proper is almost at the same level as in the previous year with respect to its geographic spread, while in Kosovo there were 12 infected communes (more than



30 percent) with 72 animals, and in Serbia proper there were 11 communes with 28 animals. The consequence of this situation in Kosovo is the high death rate in humans--eight people died of rabies.

The total number of infected animals continued to drop in 1976, but the number of human deaths--seven--is still alarmingly high. In Macedonia and Serbia proper there are relatively few cases recorded, only 14 animals in 8 communes, but 5 people died. Again that year Kosovo had the highest number of communes infected--11--with 33 infected animals, and 2 people died.

The next year, 1977, the number of animals continued to decline in Bosnia-Herzegovina, Serbia proper and Kosovo, and two people died of rabies in Kosovo. Only in Macedonia was there an increase in the number of infected animals over the previous year.

In 1978 rabies again took two human victims, one in Kosovo and one in Macedonia, but the number of animals recorded continued to drop in all the infected republics and in Kosovo. However, this zoonotic has again turned up in Montenegro in Rozaje Commune after an absence lasting many years; this is an area which borders on the infected territory, but the last case of death from rabies in this republic was recorded 16 years ago.

In the first 9 months of 1979 urban rabies has quieted down judging by the number of cases recorded, and there has been no rabies established either in Bosnia-Herzegovina or in Montenegro. In Macedonia only two dogs were reported, one each in the communes of Stip and Kocani, i.e., in the eastern part of this republic, which has not been infected for a long time. According to a report of the republic veterinary service, these were sheep dogs which had previously been in the infected area with the flock. In Kosovo only two dogs were reported in Pristina and Decane communes, but at the beginning of the year two people again died. On the basis of an epidemiological survey it was established that these persons were infected back in 1979. In Serbia proper rabies was established in 14 animals--1 dog, 1 wild boar and 12 foxes, which would support the opinion that sylvatic rabies has also made its appearance in this part of our country.

We feel that the sources of infection in the case of urban rabies are our own autochthonous reservoirs, which have persisted for years now.

#### Sylvatic Rabies

This form of rabies existed in 1973 in Slovenia and Vojvodina, and only two cases were established at that time.

The next year, in 1976, rabies was recorded in 10 foxes in 3 communes in Slovenia and Vojvodina.

A very rapid increase in the number of infected animals and commencement of a new large epizootic was noted in 1977--in Vojvodina (Backa) and northern

Croatia, but it came from neighboring Hungary. In Vojvodina there were 99 infected animals, 90 of them foxes, in 12 communes, and for the first time it was established in 2 deer in northern Backa [5]. In Croatia there were six infected opisthans and nine infected animals. It is interesting that rabies was established in two wildcats [6], and a case of rabies in a house cat in the Croatian coastal area has remained unexplained from the epizootological standpoint.

In Slovenia rabies was reported in only two communes (Murska Sobota and Lendava), where this infection has existed since back in 1973.

In 1978 the epizootic continued to spread and reached its culmination in the number of animals, especially foxes. In Croatia there were 8 infected communes, and rabies was established in 23 animals (21 foxes). In Vojvodina 24 communes were infected (54 percent of the total), and there were in all 209 infected animals (219 foxes), which had never previously been recorded in that province. In Slovenia the number of animals has been on the rise; 33 were recorded, 32 of them foxes, but they were all in a single commune.

In the first 9 months of 1979 an epizootic of rabies was in full swing: in Croatia it was established in 19 communes (18 percent), specifically in the northeastern part of this republic, involving 61 animals (55 foxes and 6 dogs). In Vojvodina there were 28 infected communes (64 percent) with 161 animals: 151 foxes, 1 dog, 5 cats, 1 pig, 2 deer and 1 badger. It was noted that in the last 3 years wild deer have been infected with rabies, and that cats are infected more frequently than dogs [3, 5, 7]. Between 1977 and 1 September 1979 rabies was established in 16 cats and only 5 dogs. At the beginning of the year the northwestern area of Slovenia (Jesenice, Kranj, Ravne na Koroskem) was affected by a new epizootic of rabies which originated in Austria and probably Italy as well, which with the 2 communes in the eastern part of the republic makes 5 communes (9 percent) with 73 animals: 69 foxes, 1 dog, 1 cow, 1 deer and 1 badger. The first case of rabies in badgers was recorded in Slovenia and Yugoslavia back in 1974 [8]. As already mentioned, rabies was established in 12 foxes in Serbia proper.

On the basis of what we have said we can conclude that in the first 9 months of 1979 sylvatic rabies covered its largest area ever (more than 50 communes) and was established in more animals (more than 300) than ever before.

#### Combating Rabies

It is a fact that there have not been any major innovations in combating rabies in the world; the most effective measures of combating infectious diseases with a known source, zoonotics especially, are elimination or numerical reduction of that source. The purposes of combating rabies are these: 1) protection of humans against this disease, which is the main goal, and 2) reduction of the economic losses represented by losses of livestock. Today the unanimous position has been taken everywhere, including our own country, that the principal measure to protect humans against

rabies is to combat this disease in animals. Rabies is a zoonotic of the chain type, and man is the last link in that chain. Consequently, if one reduces the number of animals susceptible to infection, which is done through preventive vaccination, one also reduces the possibility of the disease being transmitted to humans. It is beyond dispute that only close cooperation first of all between the veterinary and health services and then among hunting organizations, law enforcement agencies, the courts, the educational system, and so on, can guarantee satisfactory results.

Rabies in Yugoslavia in 1979



#### Combating Urban Rabies

The conventional measures to combat urban rabies are well known: mandatory preventive vaccination of dogs and other livestock, destruction of wandering dogs and cats, reduction of the dog population, a well-organized public health service, health education, timely public information and adherence to and enforcement of legal statutes.

The problem of reducing the large number of dogs and of organizing and operating the public health service would be solved by introducing a dog tax. Though it was expected that these measures would act as a disincentive on dogowners and would reduce the total number of dogs and that the public health service would begin to operate in accordance with regulations with the considerable funds collected, the anticipated results were not forthcoming, and there must be renewed insistence on solving these problems. The veterinary service, the health service and the municipal utilities, as well as commune agencies bear the greatest responsibility for organizing and monitoring the work of the public health service, and they should also be the ones most highly motivated to see that service operate properly.

The organized removal and utilization of animal carcasses and waste in rendering plants to obtain animal protein, of which there is a need to feed livestock, represent only one aspect of the work of this service. It would also organize ad hoc campaigns to destroy wandering cats and dogs with the help of hunting organizations, and police agencies and members of the armed forces would by their presence impart a greater significance to this kind of campaign.

Within the scope of the measures being taken to combat urban rabies annual preventive vaccination of dogs certainly occupies the most important place (Table 3).

Table 3. Number of Dogs Vaccinated and Killed in Yugoslavia, 1975-1978

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Vaccinated				
Bosnia-Herzegovina	170,055	170,284	163,349	164,833
Montenegro	10,849	143	6,453	14,402
Croatia	255,921	239,452	270,599	271,724
Macedonia	80,364	81,055	78,924	71,227
Slovenia	100,058	102,290	102,939	109,060
Serbia	395,600	341,964	303,670	332,311
Kosovo	40,247	39,366	44,959	41,697
Vojvodina	<u>197,326</u>	<u>231,692</u>	<u>244,711</u>	<u>252,217</u>
Total	1,250,420	1,206,246	1,215,604	1,257,471
Killed				
Bosnia-Herzegovina	45,377	50,857	48,495	45,864
Montenegro	1,200 <sup>-</sup>	*	*	455 <sup>-</sup>
Croatia	*	2,000 <sup>-</sup>	*	8,000 <sup>-</sup>
Macedonia	9,294	11,207	11,814	11,407
Slovenia	*	12	*	*
Serbia	24,000 <sup>-</sup>	24,000 <sup>-</sup>	28,851	21,826
Kosovo	6,527	4,738	6,729	5,279
Vojvodina	<u>*</u>	<u>*</u>	<u>9,000<sup>-</sup></u>	<u>20,000<sup>-</sup></u>
Total	86,398 <sup>-</sup>	92,814 <sup>-</sup>	104,889 <sup>-</sup>	112,831 <sup>-</sup>

<sup>-</sup> Figures not definitive.

\* Figures lacking.

It is evident from Table 3 that over the last 4 years (1975-1978) the number of dogs vaccinated and killed in the various republics and provinces and throughout the country is similar to that from the previous 4-year period (1971-1974) [2]. It is difficult to say what percentage the number of

dogs vaccinated represents in the total dog population, since there are a large number of unregistered and wandering dogs. The importance of carrying out regular annual vaccination of dogs is also evident from Table 2, since in the republics and provinces where rabies is a regular phenomenon among dogs, there are also human victims. It is a fact that dogs are almost always the source of rabies infection for humans. We must emphasize that in recent years (1977 and 1978) urban rabies has been on the decline, which is certainly the result of the more effective implementation of veterinary and public health measures, especially preventive vaccination of dogs in these areas. This favorable situation in regions infected with urban rabies should provide the incentive for a still more persistent combative effort, which could be fruitful. The neighboring states of Italy and Bulgaria, which have managed to liquidate this form of rabies, provide an example of this.

Two antirabies vaccines are used today in our country to immunize animals: Flury LEP with live virus, only for dogs, and Hempt's inactivated vaccine, which is used to immunize dogs and other domestic animals. Quite recently preference has been given in Europe to inactivated vaccine produced on a cell culture. We feel that in the annual vaccination of dogs it is not so important which immunogenic vaccine is used, but it is indispensable that all dogs be vaccinated.

#### Combating Sylvatic Rabies

In combating sylvatic rabies, of which foxes are the principal source of infection, it is considerably more difficult to implement measures, and the anticipated results are usually not forthcoming for several reasons [9]. This is most eloquently indicated by the figures already given [1] on rabies in the European countries in 1978, where sylvatic rabies has existed for 20 or 30 years in spite of the extensive and most up-to-date veterinary and public health measures. In addition to these conventional measures and the vaccination of dogs, the principal measures should be aimed at reducing the excessively large fox population by the methods already described [10], such as organized hunts with beaters, a bounty on foxes, digging foxes out of their holes with dogs, shooting gas into fox holes, and so on. Aside from the veterinary service, hunting organizations should be most involved, since, as we have already said, the fox is not only the principal source of rabies infection, but is at the same time an important pest, because he destroys game. It is a fact that in spite of the large number of infected animals in the areas with sylvatic rabies there have so far been no fatal cases among humans, which is among other things the result of the actions taken to prevent the spread of this zoonosis.

Because of unsatisfactory results in combating sylvatic rabies, much has been done recently in the world to study the possibilities of peroral immunization of foxes in the wild, which has been successfully done on a preliminary basis under laboratory conditions so as to obtain a similar benefit as in immunizing dogs. The first field experiment with this kind of



immunization of foxes is now under way in a part of Switzerland [11] with a special attenuated strain of the rabies virus grown in a cell culture and put in baits--chicken heads. The first results are satisfactory, and great importance is attributed to these experiments, and there is hope that this method will be quite widely applied.

There is also a need to examine the possibilities of preventive vaccination of cats on a larger scale, since it is obvious that cats are infected with increasing frequency in areas with sylvatic rabies, and because of their aggressiveness they are almost constant threats to human health.

#### Pre- and Postinfection Antirabies Protection of Humans

We would like in conclusion to indicate the postinfection protection of humans, which consists of local treatment of the wound and administration of antirabies serum and vaccine (Table 4). In our country about 2,500 people receive antirabies treatment every year. Over the last 4 years 19 people have died of rabies. The fact that antirabies protection was not effective with three people convincingly supports the assertion above that combating rabies in animals is the best way to protect human health.

Quite recently preventive preinfection vaccination of persons occupationally exposed to infection with rabies virus (veterinarians, laboratory personnel, hunters, and so on) has been recommended. Antirabies vaccines produced on cell cultures are used for this purpose; they do not cause post-vaccinal neurocomplications.

Table 4. Antirabies Treatment of Humans in Yugoslavia, 1975-1978

Year	Treated				Died		
	Vaccine		Vaccine	Total			Total
	Serum	and Serum			Treated	Untreated	
1975	368	593	1,555	2,516	2	6	8
1976	396	625	1,413	2,434	1	6	7
1977	315	681	1,540	2,536	0	2	2
1978	379	677	1,743	2,799	0	2	2
4 years	1,458	2,576	6,251	10,285	3	16	19

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7043

CSO: 5400



BRIEFS

BULGARIAN TOBACCO AID TO CUBA--The first three plant health specialists from Bulgaria who will help in the tobacco blue mold disease prevention and control program already are in our country. The specialists will be working in Pinar del Rio, Villa Clara and Sancti Spiritus Provinces. They are part of the co-operation plan which Bulgaria has offered to Cuba in the fight against the blue mold disease. (Havana Domestic Service in Spanish 1916 GMT 20 Oct 80 PL)

CSG: 5600

COLOMBIA

#### BRIEFS

AFRICAN BEES THREATEN CATTLE, POULTRY--Bogota--Cattlemen and poultry farmers are facing considerable losses in various sectors of the country due to the arrival in Colombia of dangerous African bees, which have already caused many deaths among small cattle and birds. The Agriculture Ministry's Sanitation Department reported the presence of the insects in the eastern part of Boyaca, the eastern plains, Santander and recently on the Atlantic coast and in Cesar Department. The ministry has already organized a course to study and design measures to control the bees' high reproduction rate and their destructive effects on animals and even humans. [Text] [PA210337 Bogota Cadena Radial Super in Spanish 2330 GMT 20 Oct 80]

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## BRIEFS

CROP SPRAYING--Makale--Pesticide was sprayed over crop on 18,000 hectares of land in Tigrai region during the just ended Ethiopian calendar year. According to the area Agricultural Extension Office, aircraft was deployed in Raya-Azebo province to spray pesticide over 12,250 hectares to control pests in the area. Besides, peasants were provided with chemicals for use on their plots. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 7 Oct 80 p 8]

CSO: 5400

## EFFECTS OF DISEASES INTRODUCED FROM ABROAD DISCUSSED

Christchurch THE PRESS in English 29 Aug 80 p 17

[Text]

In his presidential address to the 26th meeting of the New Zealand Genetical Society in Auckland this week, Mr T. P. Palmer, of the Crop Research Division of the Department of Scientific and Industrial Research at Lincoln, had some interesting views about the introduction of animal and plant material from overseas and disease control.

He does not see the introduction of disease being by any means all bad or harmful and indeed some advantages may flow from it.

"If we are to breed for resistance to disease, and this is a surer long term bet for disease control than attempting to isolate ourselves from it, then there is a risk of introducing the disease," he said. "But if we do not breed for resistance or inoculate against the disease, once it enters it will move unhindered through the local susceptible population."

"To combat a disease an isolationist would not consider introducing plants or animals from areas where the disease is endemic. A breeder would not import from anywhere else."

Mr Palmer said that one of the main reasons advanced for restricting im-

ports was to prevent the introduction into New Zealand of dread animal and plant diseases, which would ruin the economy.

That the diseases might not be all that bad, that the risks of introducing them should be scientifically assessed and that there were costs associated with the present policy were heretical thoughts.

But some of the dread diseases were not intrinsically very harmful. They had been made so by definition, regulation or scare mongering. Potato cyst nematode was a case in point; scrapie in sheep was another. These diseases did not cause significant losses in countries where they were endemic, but New Zealanders feared that they might restrict trade to other countries.

It was important that restrictions should be based on facts and not on unjustified fears. There seemed to be little evidence that animal products from this country's disease-free flocks and land sold at premiums on world markets. In fact, quite the contrary in developed countries, while customers in the developing markets of the Middle East were more interested in "sanctity"

than the sanitary aspects of meat production processes.

As with animal diseases there were many plant pests which New Zealand had not got and did not want, and restrictions on the entry of seeds and plants were designed to prevent them getting here.

Some of these diseases were innocuous and restrictions to keep them out could only hinder production in New Zealand. Pea seed-borne mosaic or barley stripe mosaic were examples.

Some diseases, though serious, turned out to confer benefits as well as having costs. Attempts to keep them out could be counter-productive.

Restrictions on the importation of lucerne seed, designed to prevent the entry into New Zealand of bacterial wilt of lucerne, had aggravated the effects of the disease when it was discovered to be here. Because of the restrictions, very few resistant varieties had been tested here and now 10 years later the supply of seed of resistant varieties was not adequate to meet the demand.

The history of the disease in the United States

was instructive. It was probably introduced to the United States in undressed lucerne seed from Turkestan. This was imported in large quantities in the early years of the century following Hansen's expeditions to Siberia and the realization that these lucernes were winter hardy enough to extend lucerne growing into the Great Plains of the United States and Canada.

They had a high degree of resistance to bacterial wilt and when it spread from them to susceptible varieties in other zones they were used to breed resistant lucerne varieties with a wide range of adaptation. The importations from Turkestan thus brought into the United States the cure as well as the disease and stimulated lucerne breeders to produce varieties which were better in many other respects than being resistant to bacterial wilt.

Similarly in New Zealand varieties such as Saranac, with a high degree of resistance to wilt, or Rare with aphid resistance, were being grown primarily for their wilt or aphid resistance, but were also conferring the advantages of resistance to leaf diseases or

extra winter production.

The New Zealand consumer might be introduced to the pleasures of eating yellow-flesh potatoes because a yellow-flesh, nematode resistant variety had been bred at the Crop Research Division. A yellow-flesh potato, without the strong selling point of nematode resistance, would not have been acceptable to the conservative potato growing and marketing industry.

"The introduction of quite serious pests and diseases need not be an unmitigated disaster," said Mr Palmer. "If there is a positive reaction to them they may result in gains and not losses."

He said that breeders of crop plants, with some exceptions, had reasonable access to world plant resources. For animal breeders the situation was quite different. Gene sources had been limited historically, and now legislatively, to a small part of Europe. Techniques for safe introduction and rapid multiplication now existed. They should be developed and used to overcome unreasonable quarantine barriers. Unreasonable barriers, which had been erected from fear or prejudice and were not based on facts, should be examined and dismantled.

The impetus for this must come from animal

breeders. They should know, or find out, what the introduction of exotic genes offered the animal industry. It could not be expected from the present breed societies. It must come from professional animal geneticists in university, Government or producer board employ.

Mr Palmer said that introduction of plant breeders' rights had brought New Zealand plant breeding into the mainstream of world plant breeding and given New Zealand farmers access to the best the world could offer.

Animal breeding needed a nudge from its present isolationist position. If New Zealand farmers did not have access to the best breeds of animals and varieties of crops which the world could offer, they would be competing with a continually worsening handicap on world markets.

New Zealand agriculture needed a more open policy, particularly towards animal breeding. Who was to be the advocate for this policy? The breed societies had vested interests opposing it, the universities had shown no inclination to take up the challenge and Government departments were constrained from doing so. It was one of the duties of the Genetical Society to do this.

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